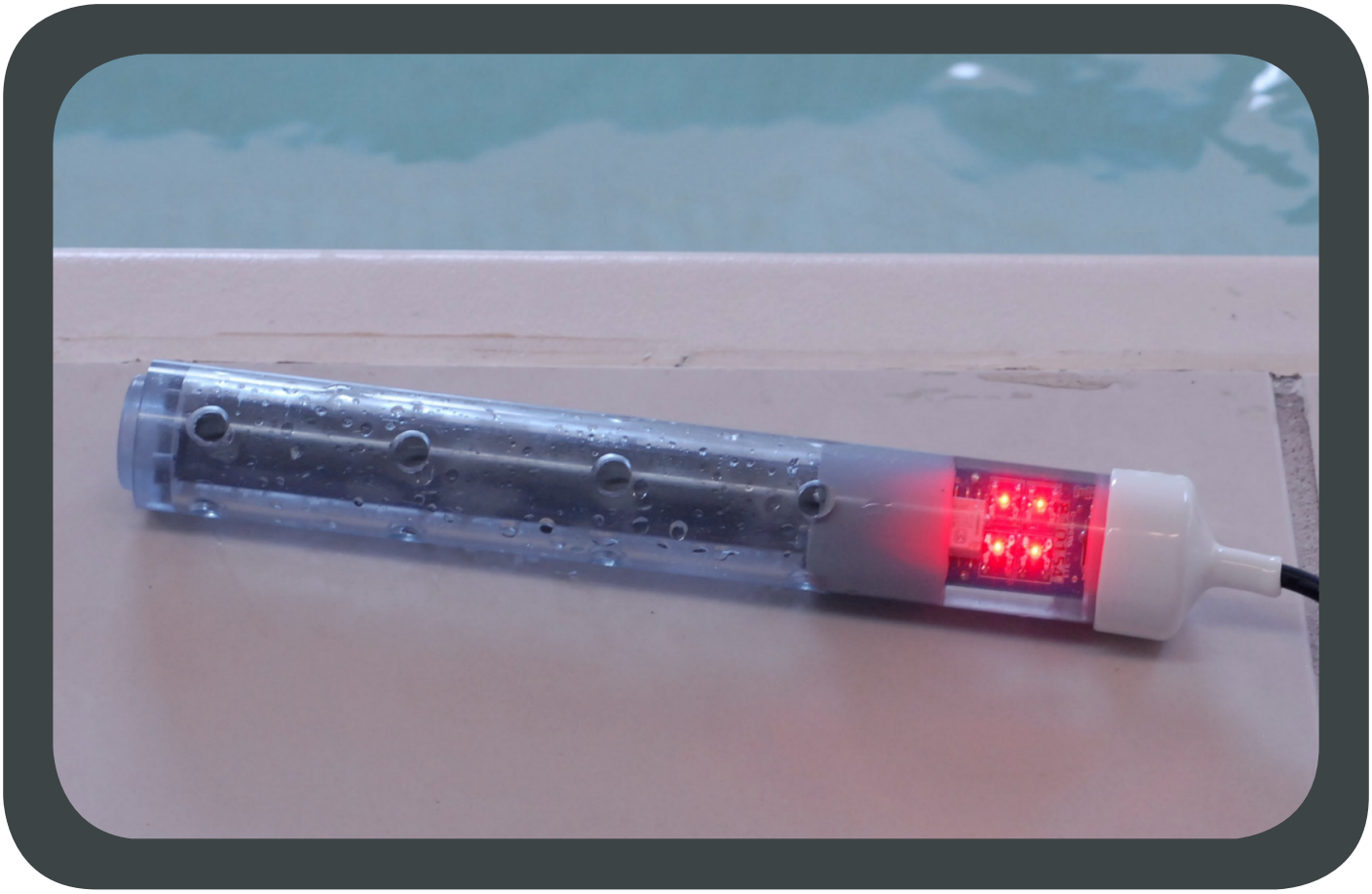
ColorChlor®



Operating Instructions

ControlOMatic, Inc. 13433 Lime Kiln Road, Grass Valley, CA 95949
www.ControlOMatic.com Support@ControlOMatic.com 530-205-4520
Manual Version: 9/1/11 Made in the USA

INTRODUCTION

ColorChlor is a semi-automated, salt water chlorine generation system specifically designed for portable spas up to 600 Gallons. ColorChlor generates chlorine from a small amount of ordinary salt (Sodium Chloride, NaCl) dissolved in the spa water. The amount of salt added is very small in relation to the volume of the water in the spa. It's about 90% less concentration than ocean water and below the typical taste level of most humans.

The small addition of salt also benefits users by providing a softening effect on the water, leaving hair and skin feeling smoother and healthier than with traditional sanitizing products. Only 2.5 cups of salt per 100 gallons of water is all it takes for ColorChlor to produce fresh, pure chlorine leaving your water clean and clear day after day.

IMPORTANT SAFETY INSTRUCTION

WARNING: Use ColorChlor only according to these instructions. Any modification or misuse of this product will void the warranty.

WARNING: Install ColorChlor in accordance with all national and local electrical, plumbing, safety, and other applicable codes.

WARNING: Connect ColorChlor to a GFCI (ground fault circuit interrupt) or GFI (ground fault interrupt) protected 110 VAC power source only.

WARNING: Protect the power supply and outlet from exposure to the elements including direct sun, rain, snow, condensation, etc.

WARNING: DO NOT USE WITH AN EXTENSION CORD. INJURY MAY RESULT.

WARNING: DO NOT allow children to operate ColorChlor unless under adult supervision.

WARNING: DO NOT allow children to plug/unplug the ColorChlor's power supply.

WARNING: DO NOT insert objects into, or tamper with ColorChlor's body in any way. Inserting metal objects into the body may cause damage and void the warranty.

WARNING: DO NOT operate ColorChlor or ColorChlor if damaged in any way.

WARNING: DO NOT pull on the cord to disconnect the Power Supply from power source. Do not allow the cord to rest on sharp edges or corners or to be walked upon. Do not drop, throw, or otherwise rough handle ColorChlor.

WARNING: DO NOT handle the unit during chlorine production (visible bubbling). Slight discomfort may be felt in cuts, sores, or sensitive skin areas due to chlorine concentration and the electrolysis process. Stop chlorine production by either removing ColorChlor from the water by lifting the cord (do not grasp the housing), or by unplugging the power supply from the power source.

WARNING: Unit must be disconnected from power source before performing any maintenance or troubleshooting operations.

WARNING: Disconnect, remove, and store ColorChlor or ColorChlor indoors when spa has been winterized or drained.

CAUTION: Leave spa cover open at least 30 seconds to allow trapped gases to escape prior to use.

CAUTION: If unit is not working properly, or has been damaged in any way, contact technical support immediately at 1-530-205-4520.

CAUTION: Measure water quality parameters and adjust if necessary prior to each spa use.

CAUTION: Make sure all spa electrical components and power cords have been thoroughly inspected by a licensed electrician prior to using ColorChlor.

WATER PREPARATION & MAINTENANCE

To ensure proper operation, the spa must be drained, rinsed, refilled with fresh water, and balanced to the recommended levels indicated in this section before installing the product. Use the test strips to measure water chemistry and verify that the water has been balanced properly. Replacing the filter is recommended but not required unless the spa was previously sanitized with a hydrogen peroxide system. The combination of hydrogen peroxide and chlorine may cause gum-like build up, water discoloration, and skin irritation.

It is important to properly maintain your spa for the health and safety of its users. Spas are unique in both size and usage patterns. ColorChlor will significantly reduce the amount of spa maintenance required, but chemical check-ups including chlorine levels and PH are recommended before each use. Proper water maintenance will prolong the life of ColorChlor and the spa. The following table describes generally accepted optimum water chemistry for portable spas.

PARAMETER	RECOMMENDED LEVEL
Free Chlorine	3.0 to 5.0 PPM
PH Balance	7.2 to 7.6
Total Alkalinity	80 to 120 PPM
Calcium Hardness	150 to 300 PPM

It is recommended that chlorine and PH levels are checked before each use, or at least once per week when not in use. Alkalinity, Calcium Hardness, and Salt Concentration should be checked at least once per month. It is recommended that the spa is manually shocked after high usage (example: after a party with multiple users), or biweekly if used frequently. Always remember to leave the spa circulating for several hours before retesting. Phosphates in the spa water will increase the demand for chlorine and will reduce the life expectancy of the generator. Remove Phosphates upon start up and each month there after. Phosphate Remover can be purchased at any local Pool & Spa supply store.

WARNING: Consistent chlorine levels above 5.0 PPM or consistent salt concentration levels above 5,000 PPM may lead to corrosion of metal components in the spa.

WARNING: Consistently low Calcium Hardness levels below 150 PPM may lead to spa equipment damage and failure. Make sure Calcium Hardness levels are within the recommended range above.

SALT REQUIREMENT

ColorChlor can generate both Chlorine or Bromine. It all depends on which sanitizer the user prefers. Use Sodium Chloride Salt if you prefer Chlorine Generation and Sodium Bromide Salt if you prefer Bromine. Please Note: Each salt requires a different level of salinity for ColorChlor to operate effectively.

CHLORINE SALT - SODIUM CHLORIDE (NaCl): Raise Salt Level to 2,000 PPM (Parts Per Million). Approved salts include "pool salt" made for salt water chlorine generating systems, canning and pickling salt from your local market, and some water softener salts that are 99% pure sodium chloride or better. Some high-end, mineral enriched salts can be used but require higher quantities to achieve 2,000 PPM sodium chloride salt level. These approved salts are generally available at pool & spa supply stores, home improvement centers and On-Line stores in a variety of sizes. *Never use rock salt or salts that have more than 1% "anti-caking agents", "yellow prussiate of soda", or "sodium ferrocyanide". These compounds may cause surface staining.* Please use chart below.

BROMINE SALT - SODIUM BROMIDE (NaBr): Raise Salt Level to 3,000 PPM (Parts Per Million). There are several manufacturers of Sodium Bromide Salt to choose from. Please make sure the Sodium Bromide you purchase is 99% pure or better. Ask your local pool and spa dealer for assistance. Please use chart below.

Chart is Based on 100 Gallons or 379 Liters of Spa Water

SALT TYPE	POUNDS	CUPS
99% Pure Sodium Chloride (NaCl) - Pool, Pickling, Canning & Other Fine Grain Salts	1.4	2.3
99% Pure Sodium Chloride (NaCl) - Water Softener & Other Coarse Grain Salts	1.5	2.5
Hymalayan Salt Fine Grain Salt (Mineral Enriched)	1.8	2.9
Dead Sea Salt Coarse Grain Salt (Mineral Enriched)	2.5	5.0
99% Pure Sodium Bromide (NaBr) Fine Grain Salt	2.5	4.0

The amount of salt to add and dissolve is dependent upon the size of the spa. Determine the volume of water in gallons or liters by checking the spa owner's manual or use any internet volume calculator.

99% Pure Sodium Chloride (NaCl) Coarse Grain Example For a 350 Gallon Spa: Divide 350 Gal by 100 Gallons then multiply answer by 2.5 Cups. (350 / 100 = 3.5 x 2.5 = 8.75 Cups)

99% Pure Sodium Bromide (NaBr) Fine Grain Example For a 1,326 Liter Spa: Divide 1,326 Liters by 379 Liters then multiply answer by 4.0 Cups. (1,326 / 379 = 3.5 x 4.0 = 14 Cups)

Simply pour the recommended amount of salt directly into the spa water to bring the concentration to the recommended level. Turn the spa jets on to help dissolve the salt. Warmer water will aid in dissolving the salt faster. If the water is cold it may take several hours for the salt to fully dissolve.

WARNING: Do not turn ColorChlor on until all the salt has fully dissolved.

SALT LEVEL INDICATOR

ColorChlor will indicate if the salt level is within the recommended range listed above. ColorChlor will indicate proper salt levels by showing two (2) solid **BLUE** lights while producing chlorine. Note: If four (4) lights are shown with the following colors, ColorChlor is engaged in "Boost Mode" (See "Boost Mode" section).

Two solid **GREEN** lights while producing chlorine: **Salt Level Too High**

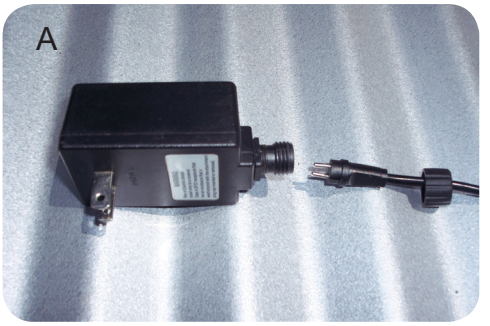
Two solid **BLUE** lights while producing chlorine: **Salt Level Within Normal Range**

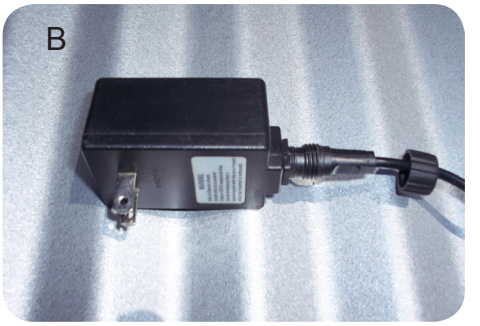
Two solid **RED** lights while producing chlorine: **Salt Level Too Low**

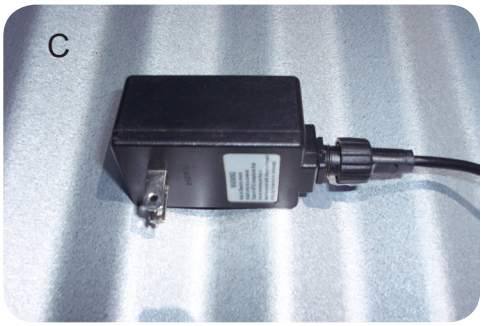
IMPORTANT: It is important to occasionally check that the lights are indicating proper salt level. Always use Salt Test Strips to check the salt level and adjust the water according to the Test Strips. If Test Strips Show Too High: remove some water from the spa and replace with fresh water. Re-test and adjust as necessary. If Test Strips Show Too Low: Add salt. Re-Test and adjust as necessary.

PRODUCT INSTALLATION

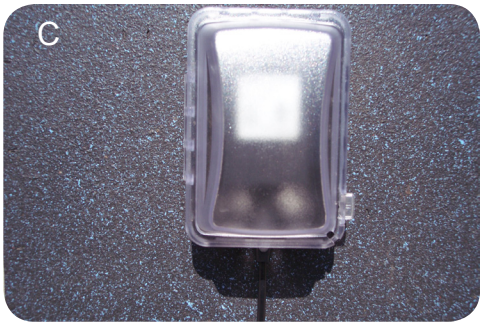
1. Remove the tie straps from the product cable, unwind the cable, attach the cord's water tight black connec tor to the black power supply, and hand tighten the nut.







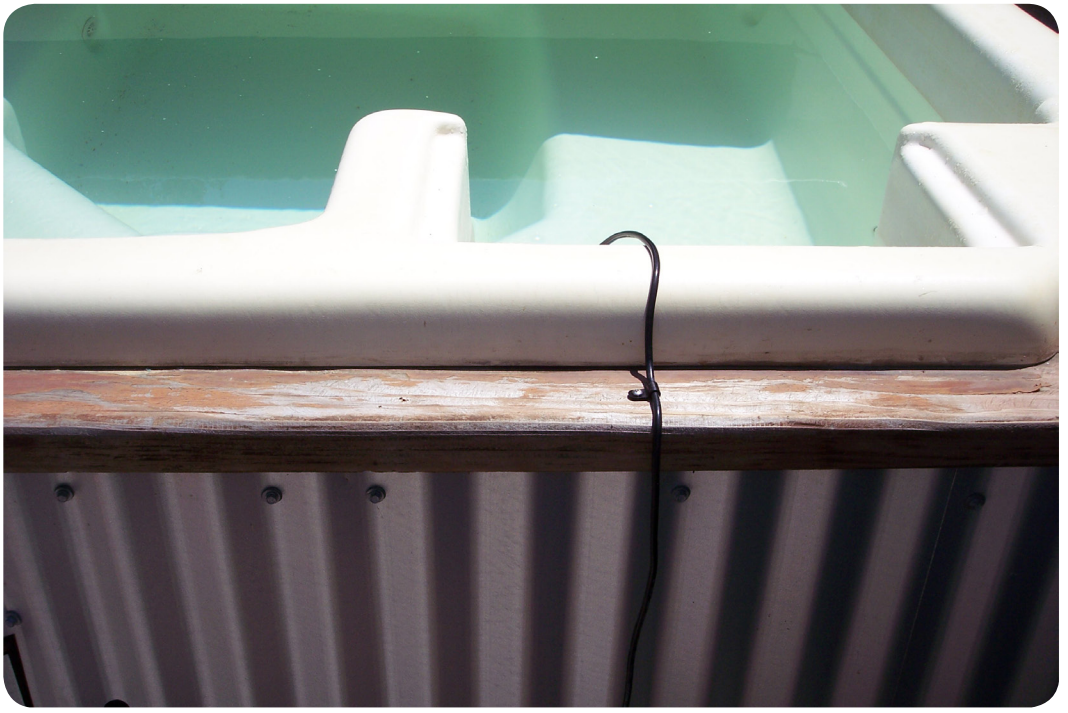
2. Plug ColorChlor into a 110 VAC wall outlet. **WARNING: A 110 VAC GFCI or GFI protected outlet is required. A weather protective cover is required to house the power supply at the power source connection. Weather protective covers are available at most local hardware stores. If an outlet needs to be installed, have a licensed electrician add a 110 VAC GFI protected outlet. Do not use an extension cord.**



PRODUCT INSTALLATION CONTINUED

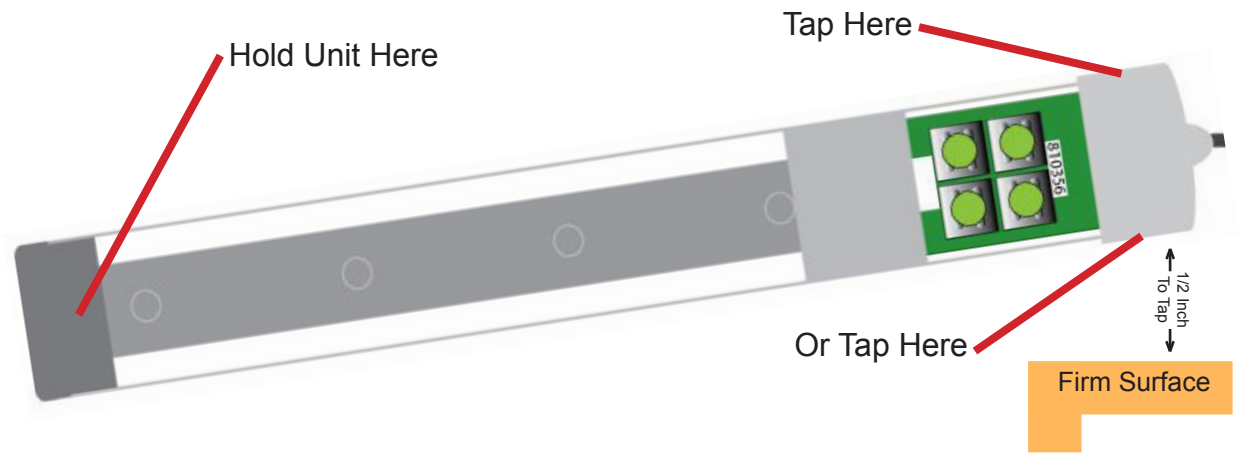
3. Make sure spa water is at the appropriate salt level (See “Salt Requirement” Section). Allow ColorChlor to drape over the side of the spa and immerse in the water and vertically rest at the deepest point in the spa. Plug ColorChlor into the GFCI protected outlet, and after a brief pause, the unit will begin chlorine production.

4. Attach the supplied cable clip to the outside of the spa by first inserting the cable into the cable clip. Then use the wood screw to fasten the cable clip to any point near the spa’s edge.



PRODUCT OPERATION

ColorChlor operates using Tap Technology. Tap Technology simply requires you to hold ColorChlor firmly at the end opposite of the cable and ***Gently Tap the Soft Rubber Cap*** of the unit against a firm surface such as your hand or side of the spa (See TAP Diagram Below). Start your tap approximately 1/2" (Half Inch) away from the tap surface. Always tap on either side of the green circuit board as indicated in the diagram below so the lights are facing you.



1. **POWER OFF:** If plugged into power source, simply pull ColorChlor out of the water to temporarily turn the power off. To turn power off longer term, simply unplug or shut down main power (breaker) at the power source.
2. **POWER ON:** Connect ColorChlor to power source and immediately submerge ColorChlor in the spa water. ColorChlor is pre-set by the manufacturer to power level 3. ColorChlor will automatically begin chlorine production on power level 3.
3. **STANDBY MODE:** Standby Mode is indicated by a quick **GREEN** flash every 10 seconds when it is not producing chlorine (off cycle).
4. **RESET & REVIEW CURRENT POWER LEVEL:** Like a double mouse click on a computer, ColorChlor requires two quick consecutive taps (DOUBLE TAP) to observe the current power level by counting the **GREEN** flashes following the double tap. 5 **GREEN** flashes means it is currently set to power level 5, 7 **GREEN** flashes = power level 7, etc. A double tap can be done at any time, while in production mode or in standby (off) mode, to review the current power level and to reset ColorChlor back to the beginning of current power level setting.
5. **CHANGING POWER LEVELS:** There are two ways to enter the Power Change Mode (10 **GREEN** Flashes). Once in the Power Change Mode, simply submerge ColorChlor on the 7th Green flash, for example, and ColorChlor will then change to Power Level 7. Following a brief pause, it will then confirm the new power level by counting the **GREEN** flashes.
    - **TAP & DIP - Four Consecutive Taps:** Simply pull ColorChlor out of the water to turn the units power off (lights will shut off). Give the unit Four (4) Quick Consecutive Taps. Following the Four (4) consecutive taps ColorChlor will start to flash **GREEN** 10 times indicating that it is in Power Change Mode. While flashing **GREEN**, simply submerge ColorChlor on the **GREEN** flash count of your choice to change the power. It will then confirm the new power level by counting the **GREEN** flashes.
    - **POWER & DIP - Cycle Main Power Off & On:** Simply pull ColorChlor out of the water and unplug ColorChlor form the power source or shut off power at the main breaker. Wait 10 seconds and turn the power back on. Once the power is cycled back on ColorChlor will start to flash **GREEN** 10 times indicating that it is in Power Change Mode. While flashing **GREEN**, simply submerge ColorChlor on the **GREEN** flash count of your choice to change the power. It will then confirm the new power level by counting the **GREEN** flashes.

EXAMPLE (Change from power level 5 to power level 7): Pull the unit out of the water and give ColorChlor 4 consecutive taps or cycle power at the power source off then on. It will start to flash **GREEN** 10 times. Simply submerge ColorChlor on the 7th **GREEN** flash to set to the new power level. It will then be followed by 7 **GREEN** flashes confirming the power is now set to power level 7.

IMPORTANT NOTE: If you feel you may have started the process incorrectly or mis-tapped, don't worry, just stop and wait about a minute allowing the unit to shut down (no lights), or shut main power off, then simply start the process over.

SELECTING THE RIGHT POWER LEVEL

Selecting the right power level requires some testing and adjustment. There are many factors that affect the sanitizing needs of a spa such as: Frequency of spa use, number of people, if there is an Ozone Generator, spa temperature, last drain and refill, etc. However, after the testing and adjustment period, ColorChlor will take care of your sanitation needs day after day. As a starting point, please program ColorChlor and set the power level to the general recommendations shown in the chart below.

Power Level	ColorChlor Spa (Gallons)
1 to 3	Less than 200
4	200 to 300
5	300 to 400
6	400 to 500
7 to 10	500 and above

Test the Chlorine Level with test strips after 1 to 2 days. When testing, the best readings are always done about an hour after restarting ColorChlor with a double tap to initiate chlorine production at the beginning of a power level cycle. If the chlorine level is LOW, increase the power level by one level. If the chlorine level is HIGH decrease the power level by one level. Wait a day or so after this initial adjustment, re-test and repeat as necessary until a consistent chlorine residual has been achieved. If the chlorine level is VERY high or VERY low, adjust by 2 levels, as needed.

IMPORTANT NOTE: If the chlorine level is zero 24 hours after installation, the initial chlorine demand on the spa may be above what ColorChlor can produce to break away from zero. In this case, manually add chlorine or shock (according to the product label) to assist in the initial set-up.

If spa usage drops (vacation, winter, etc), it is important to re-set the power level down several levels. If usage significantly increases, (return from vacation, etc) it is important to adjust the power level up accordingly. Always retest and adjust the power level as needed.

BOOST MODE

Boost Mode is designed to replenish chlorine that was just used during the last spa use. Boost Mode will continuously generate chlorine for a period of time that is 4 times the normal set power level. After the Boost Mode cycle is complete, ColorChlor will revert to the normal power level cycle.

1. **BOOST MODE ON:** To activate Boost Mode, simply remove ColorChlor from the water and wait until it shuts down (lights will shut off). Give ColorChlor One (1) Single Tap. Immediately following One (1) single tap, ColorChlor will quickly flash **RED** Four (4) times indicating that it will automatically resume chlorine generation in Boost Mode after a 30 minute delay (no lights). Re-submerge ColorChlor. After a 30 minute delay, ColorChlor will indicate that its in a Boost Mode Cycle when all four (4) lights are **BLUE** while its producing chlorine. This also indicates that the water is at the appropriate salt level. **Note: If all four (4) lights are RED or GREEN, ColorChlor is still Boost Mode it just means the salt level needs adjustment (See "Salt Level Indicator" Section).**
2. **BOOST MODE OFF:** Simply remove ColorChlor from the water and wait until it shuts down (lights off). Give ColorChlor a DOUBLE TAP and immediately re-submerge. ColorChlor will display the current power level setting and will begin production at the current power level.

TEMPERATURE COMPENSATION

ColorChlor is designed with automatic temperature compensation. Should the spa temperature be reduced while on vacation, ColorChlor will automatically reduce chlorine output. Cold water requires less chlorine than warm water. When water temperature raises back to normal, ColorChlor will automatically resume normal chlorine output. Check chlorine levels before and after vacation to make sure proper chlorine levels are maintained.

LIGHT SHOW OPERATION

Use the following steps to begin a light show. Always tap on either side of the green circuit board as indicated in the so the lights are facing you (See Diagram In Product Operation Section).

1. Staring a light show can be done with ColorChlor in or out of the water. In either case, ColorChlor will stop the chlorine generation process.
2. In or out of the water, tap ColorChlor a single time to advance to the first light show. DO NOT DOUBLE TAP or it will start flashing blue to display the current power level. If this happens, wait until it finishes flashing the current power level and then shuts off, then single tap again to start the first light show.
3. At any time, in or out of the water, single tap ColorChlor to advance to the next light show. Use the chart below to tap to the light show of your choice, or simply experiment on your own. Each light show is programmed to last 30 minutes if left un-tapped. If left un-tapped for an entire light show, ColorChlor will automatically resume the chlorine generation process in "Boost Mode" (See Boost Mode Section).

EXAMPLE: Single Tap 9 times with a brief pause in between each tap to start the Rainbow Temptation light show below.

1st Tap: All Lights Off (All lights will be off for 60 Minutes)
2nd Tap: Wild **White**, all LED's are solid **white**.
3rd Tap: Brilliant Blue, all LED's are solid blue.
4th Tap: Awesome Aqua, all LED's are solid aqua.
5th Tap: Passionate Pink, all LED's are solid pink.
6th Tap: Radiant Red, all LED's are solid red.
7th Tap: Rainbow Delight, slowly fades from green, yellow, red, green, aqua, blue
8th Tap: Rainbow Sensation, slowly fades from green, aqua, blue, aqua, green, aqua
9th Tap: Rainbow Temptation, slowly fades from red, pink, violet, blue, violet, pink
10th Tap: White Flashing Slow Strobe
11th Tap: Red Flashing Slow Strobe
12th Tap: Rainbow Delight (30 Second Transition)
13th Tap: Rainbow Sensation (30 Second Transition)
14th Tap: Rainbow Temptation (30 Second Transition)
15th Tap: Temperature Display (Red = 100's, Green = 10's, Blue = 1's) Count flashes

TEMPERATURE DISPLAY

The 15th single tap advances ColorChlor to the Temperature Display light show (Refer To Chart Above). When you have successfully advanced through 15 single taps, ColorChlor will flash the current temperature; Reds = 100's, Greens = 10's, Blues = 1's.

Examples: 1 red flash and 4 blue would be 104°F

1 red flash with a brief delay followed by a red flash would be 100°F

9 Green flashes and 8 Blue flashes = 98°F and so on.

Note: Temperature display is considered a light show. The temperature will keep repeating for 30 minutes if left un-tapped or simply single tap to the next light show of choice.

QUICK REFERENCE - LIGHT COLORS

When ColorChlor is producing chlorine;

2 Solid **GREEN** Lights: Normal Power Level Production - Salt level is high

2 Solid **BLUE** Lights: Normal Power Level Production - Salt level is normal

2 Solid **RED** Lights: Normal Power Level Production - Salt level is low

4 Solid **GREEN** Lights: BOOST MODE Production - Salt level is high

4 Solid **BLUE** Lights: BOOST MODE Production - Salt level is normal

4 Solid **RED** Lights: BOOST MODE Production - Salt level is low

When ColorChlor is not producing chlorine;

4 **GREEN** Lights Quick Flash Every 10 Seconds: Indicating Normal Standby Mode (off time)

After One (1) Single Tap;

4 **RED** Lights Quickly Flash 4 Times: Indicating Boost Mode Production after 30 minute delay (no lights)

After One (1) Double Tap;

2 **GREEN** Lights Flashing: Indicating current power level setting by counting the green flashes

After Four (4) Consecutive Taps;

4 **GREEN** Lights Flash 10 Times: Indicating Power Change Mode. Submerge

TROUBLE SHOOTING

It is always a good idea to revisit the user manual to make sure installation or maintenance steps were not over-looked before referring to the trouble shooting section.

Problem	Possible Causes	Corrective Action
Solid **Red** Lights	Salt level very low	Add salt - use test strips
	Plates need cleaning	Soak the units plates in vinegar for 10 to 30 minutes
	Product Life Span Over	Refer to Life Span Indicator section of this manual
	Plates damaged	Unit needs to be replaced
Consistently Low Chlorine	Power level too low	Increase the power level
	Plates need cleaning	Soak the unit in Vinegar for 30 minutes
	Low salt level	Adjust the salt level as necessary - use test strips
	Large bather load	Additional chlorine or shock may be needed
	Just doesn't keep up	Remove organic material, such as leaves, etc.
		Make sure the unit is at the lowest point in the spa
		Clean the filter
		Shock the water
Consistently High Chlorine	Power level too high	Lower the power level
Plates Are Dirty With White Or Scale Build Up	Hard water, high calcium and minerals in water.	Unplug power supply and reconnect to manually reverse polarity. If still dirty, soak the unit in vinegar for 30 minutes. Also reduce calcium level in water.

LIMITED WARRANTY

Models: This warranty applies to ColorChlor models referenced as “System”.

ControlOMatic, Inc. Warrants the system to be free of all defects in material and workmanship for one (1) year from the original purchase date. The system includes the power supply unit, cable, electronics, and electrolytic generator for residential use only. The product must be installed properly and used in accordance with this manual and all applicable local codes and regulations. This warranty is not transferable.

In no event shall ControlOMatic, Inc. be liable for consequential damages for breach of this warranty. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply. The warranty does not cover any loss or damage to the product due to improper installation, product abuse, misuse, negligence, or improper maintenance of the system, pool or spa. The warranty does not cover any loss or damage to the spa, spa components, users, or anything outside the system due to system failure. Purchaser assume all responsibility for using the system.

This warranty does not apply to any costs, repairs, services, damages, claims or losses for all of the following: Service calls to correct the installation of the product, or to explain the usage of the system to the buyer, repairs necessitated by use other than normal home use, damage resulting from misuse, unintended use, unforeseen use, non pool or spa use, abuse, accidents, alterations, improper installation, or corrective work necessitated by repairs made by anyone other than an authorized service technician.

THE FOREGOING WARRANTIES ARE CONTINGENT ON THE PROPER USE OF THE SYSTEM IN ACCORDANCE WITH THESE INSTRUCTIONS AND SPECIFICATIONS AND SHALL NOT APPLY TO ANY SYSTEM THAT HAS BEEN REPAIRED OR MODIFIED BY PERSONS OTHER THAN THE MANUFACTURER.

THE EXPRESS WARRANTIES SET FORTH IN THIS AGREEMENT ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. MANUFACTURER HEREBY SPECIFICALLY DISCLAIMS ANY OTHER REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT WILL MANUFACTURER’S LIABILITY FOR ANY CLAIM, WHETHER IN CONTRACT, TORT OR UNDER ANY OTHER THEORY OF LIABILITY, EXCEED THE AMOUNT NECESSARY TO REPAIR OR REPLACE THE COVERED SYSTEM.

Damage to the system from improper water maintenance is not covered in this warranty.

Should any problem develop during the warranty period, go to: www.controlomatic.com to obtain the proper technical support phone number. You will need the serial number visible in the clear part of the system body. You may be required to return the defective component, and if necessary, the component will either be repaired or replaced.

PRODUCT REGISTRATION

Please fill out the information below and send to ControlOMatic to properly register your product. Or register your product on line at www.ControlOMatic.com.

First Name: _____

Last Name: _____

Address: _____

City: _____ State / Province: _____ Postal Code: _____

Phone: _____ E-Mail: _____

Please copy this section and forward a copy to

ControlOMatic, Inc.
13433 Lime Kiln Road
Grass Valley, CA 95949

Or Register At www.ControlOMatic.com

Product Model: _____ Serial Number: _____